WHAT IS CLAIMED IS:

1.   An apparatus for determining an image processing parameter used for detecting an image of an object from a real picked-up image containing the image of the object, said apparatus comprising:

a capture section for capturing the real picked-up image;

a generation section for processing the captured real picked-up image to generate a pseudo image on which change in image pickup conditions relative to the real image is reflected;

a detection section for detecting the image of the object from the pseudo image using an image processing parameter; and

a change section for changing the image processing parameter so that the image of the object is not erroneously detected when said detection section erroneously detects the image of the object from the pseudo image.

2.   The apparatus as claimed in claim 1, further comprising:

a comparison section for comparing a position of the image of the object contained in the pseudo image detected by said detection section and a reference position of the image of the object,

wherein said change section changes the image processing parameter so that the position of the image of the object contained in the pseudo image corresponds to the reference

45

position when the position of the image of the object contained in the pseudo image does not correspond to the reference position.

5   3.   The apparatus as claimed in claim 1, further comprising:

an input section for inputting the image processing parameter used in said detection section,

wherein said change section changes the image processing
10   parameter automatically without re-input of the image processing parameter.

4.   The apparatus as claimed in claim 1, further comprising:

15   a first calculation section for calculating a detection error of the image of the object contained in the pseudo image using the image processing parameter,

wherein said change section changes the image processing parameter so that the detection error satisfies a predetermined
20   detection accuracy when the detection error does not satisfy the predetermined detection accuracy.

5.   The apparatus as claimed in claim 1, further comprising:

25   a   second   calculation   section   for   calculating   the

46

detection processing time required for said detection section

to detect the image of the object from the pseudo image using

the image processing parameter,

wherein said change section changes the image processing

5   parameter so that the detection processing time satisfies a

predetermined reference time when the detection processing time

does not satisfy the predetermined reference time.

6.   The apparatus as claimed in claim 2, further

10   comprising:

a second calculation section for calculating the

detection processing time required for said detection section

to detect the image of the object from the pseudo image using

the image processing parameter,

15   wherein said change section changes the image processing

parameter so that the detection processing time satisfies a

predetermined reference time when the detection processing time

does not satisfy the predetermined reference time.

20   7.   An apparatus for determining an image processing

parameter used for detecting an image of an object from a real

picked-up image containing the image of the object, said

apparatus comprising:

a capture section for capturing the real picked-up image;

25   a detection section for detecting the image of the object

47

from the captured real picked-up image using a image processing

parameter; and

a change section for changing the image processing

parameter so that at least one of a detection error and a detection

5   processing time obtained when the image of the object is detected

by said detection section satisfies at least one of a

predetermined detection accuracy and a predetermined reference

time.

10   8.   The apparatus as claimed in claim 7, further

comprising:

a comparison section for comparing a position of the image

of the object contained in the real picked-up image detected

by said detection section and a reference position of the image

15   of the object,

wherein said change section changes the image processing

parameter so that the position of the image of the object

contained in the real picked-up image corresponds to the

reference position when the position of the image of the object

20   contained in the real picked-up image does not correspond to

the reference position.

9.   The apparatus as claimed in claim 7, further

comprising:

25   an input section for inputting the image processing

parameter used in said detection section,

wherein said change section changes the image processing parameter automatically without re-input of the image processing parameter.

5

10.   A method for determining an image processing parameter used for detecting an image of an object from a real picked-up image containing the image of the object, said method comprising:

10 ·   capturing the real picked-up image;

processing the captured real picked-up image to generate a pseudo image on which change in image pickup conditions relative to the real picked-up image is reflected;

detecting the image of the object from the pseudo image

15   using a image processing parameter; and

changing the image processing parameter so that the image of the object is not erroneously detected if the image of the object is erroneously detected from the pseudo image in said detection step.

20

11.   The method as claimed in claim 10, further comprising:

comparing a position of the image of the object contained in the pseudo image detected in said detection step and a

25   reference position of the image of the object, and

49

wherein said changing of the image processing parameter

further comprises changing the image processing parameter so

that the position of the image of the object contained in the

pseudo image corresponds to the reference position when the

5   position of the image of the object contained in the pseudo

image does not correspond to the reference position.

12.   The method as claimed in claim 10, further

comprising:

10   inputting the image processing parameter used in said

detection step,

wherein said changing of the image processing parameter

further comprises changing the image processing parameter

automatically without re-input of the image processing

15   parameter.

13.   The method as claimed in claim 10, further

comprising:

calculating a detection error of the image of the object

20   contained in the pseudo image using the image processing

parameter,

wherein said changing of the image processing parameter

further comprises changing the image processing parameter so

that the detection error satisfies a predetermined detection

25   accuracy when the detection error does not satisfy the

50

predetermined detection accuracy.

14. The method as claimed in claim 10, further comprising:

5   calculating detection processing time required for said detection step to detect the image of the object from the pseudo image using the image processing parameter,

wherein said changing of the image processing parameter further comprises changing the image processing parameter so 10 that the detection processing time satisfies a predetermined reference time when the detection processing time does not satisfy the predetermined reference time.

15. A method for determining an image processing 15 parameter used for detecting an image of an object from a real picked-up image containing the image of the object, said method comprising:

capturing the real picked-up image;

detecting the image of the object from the captured real 20 picked-up image using a image processing parameter; and

changing the image processing parameter so that at least one of a detection error and a detection processing time obtained when the image of the object is detected in said detection step satisfies at least one of a predetermined detection accuracy 25 and a predetermined reference time.

51

16. The method as claimed in claim 15, further comprising:

comparing a position of the image of the object contained in the real picked-up image detected by said detection step and a reference position of the image of the object,

wherein said changing of the image processing parameter further comprises changing the image processing parameter so that the position of the image of the object contained in the real picked-up image corresponds to the reference position when the position of the image of the object contained in the real picked-up image does not correspond to the reference position.

17. The method as claimed in claim 15, further comprising:

inputting the image processing parameter used in said detection step,

wherein said changing of the image processing parameter further comprises changing the image processing parameter automatically without re-input of the image processing parameter.

18. A recording medium recording a program for determining an image processing parameter for detecting an image of an object from a real picked-up image containing the image

52

of the object, the program causing a computer to execute the steps of:

capturing the real picked-up image;

processing the captured real picked-up image to generate

5 a pseudo image on which change in image pickup conditions relative to the real picked-up image is reflected;

detecting the image of the object from the pseudo image using a image processing parameter; and

changing the image processing parameter so that the image

10 of the object is not erroneously detected if the image of the object is erroneously detected from the pseudo image in said detection step.

19. The recording medium as claimed in claim 18, wherein

15 the program causes the computer to execute the additional steps of:

calculating a detection error of the image of the object contained in the pseudo image using the image processing parameter,

20 wherein said changing of the image processing parameter further comprises changing the image processing parameter so that the detection error satisfies a predetermined detection accuracy when the detection error does not satisfy the predetermined detection accuracy.

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20. The recording medium as claimed in claim 18, wherein the program causes the computer to execute the additional steps of:

calculating detection processing time required for said detection step to detect the image of the object from the pseudo image using the image processing parameter,
wherein said changing of the image processing parameter further comprises changing the image processing parameter so that the detection processing time satisfies a predetermined reference time when the detection processing time does not satisfy the predetermined reference time.